

Serial No. Not Yet Assigned

Abstract of the Disclosure

--A reformer engine has pistons for performing compression work and at the same time an internal combustion engine for generating power, and also has a plurality of reaction chambers. The fuel battery generates energy using a reaction product from the reformer engine. The plurality of heat sources and un-reacted fuel components in the fuel battery system comprising the reformer engine improves efficiency of the fuel batter system. The heat sources and un-reacted fuel components are used for heating a raw material to be supplied to the reformer engine to raise the temperature inside the reaction chamber of the reformer engine above the self-ignition temperature of the raw material under atmosphere of the reaction chamber. A partial oxidation reaction capable of generating both of technical power and hydrogen occurs. The generated mechanical power is used in the other reaction chamber for an endothermic reaction of steam reforming reaction which can produce a large amount of hydrogen. By controlling heat balance of the system, the reforming efficiency has been substantially improved.--